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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Reissue Application of:

BILL L. DAVIS and JESSE S. WILLIAMSON

For Reissue of U. S. Patent 5,630,363

Issued May 20, 1997

Serial No. 08/515,097

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Reissue Application of:

BILL L. DAVIS and JESSE S. WILLIAMSON

For Reissue of U. S. Patent 5,630,363

Issued May 20, 1997

Serial No. 08/515,097

Filing Date: May 20, 1999

Serial No.: 09/315,796

For: **COMBINED LITHOGRAPHIC/
FLEXOGRAPHIC PRINTING
APPARATUS AND PROCESS**

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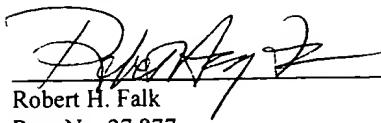
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Respectfully submitted,



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Reissue Application of:
BILL L. DAVIS and JESSE S. WILLIAMSON

For Reissue of U. S. Patent 5,630,363
Issued May 20, 1997
Serial No. 08/515,097

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**For: COMBINED LITHOGRAPHIC/
FLEXOGRAPHIC PRINTING
APPARATUS AND PROCESS**

Group Art Unit: 2854
4-19-00
S. Funk
J. Hilten

LETTER TO PATENT OFFICE DRAFTSMAN

TO: The Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

SIR:

Please transfer the original drawings, at the time of allowance, used in U.S. Pat. 5,630,363 to this reissue application.

Respectfully submitted,

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ATTORNEY FOR REISSUE APPLICANTS

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**In re the Reissue Application of:
BILL L. DAVIS and JESSE S. WILLIAMSON**

For Reissue of U. S. Patent 5,630,363
Issued May 20, 1997
Serial No. 08/515,097

Filing Date: May 20, 1999

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For: **COMBINED LITHOGRAPHIC/
FLEXOGRAPHIC PRINTING
APPARATUS AND PROCESS**

Group Art Unit: 2854

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4-19-00
L. Spruill

S. Funk
J. Hilten

REISSUE APPLICANTS' MEMORANDUM CONCERNING THE PRIOR ART AND POSITION ON PATENTABILITY - TRANSMITTAL LETTER

TO: Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

SIR:

The attached Reissue Applicants' Memorandum Concerning the Prior Art and Position on Patentability contains information which may be subject to the fee pursuant to 37 C.F.R. §1.97(c) and 37 C.F.R. §1.17(i).

A fee in the amount of \$130.00 is attached.

A duplicate copy of the Transmittal Letter is attached.

Respectfully submitted,

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



**REISSUE APPLICANTS' MEMORANDUM CONCERNING
THE PRIOR ART AND THEIR POSITION ON PATENTABILITY**

TO: The Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

SIR:

Reissue applicants previously submitted an Information Disclosure Statement and a Supplemental Statement of Prior Art and Other Information having eight Appendices of Prior Art and other information.

Attached hereto are the declarations of Baker (Blue Tab A), Bird, (Blue Tab B), Brown (Blue Tab C), Supplement to Bird (Blue Tab D) and Garner (Blue Tab E).

Reissue applicants wish to comment on the prior art and non-prior art listed therein, and, furthermore provide comments on the patentability of their invention in view of that prior art, other information, and the developments at their assignee (WPC) and their litigation adversaries (DeMoore, PRI) as follows:

**REISSUE APPLICANTS' MEMORANDUM CONCERNING
THE PRIOR ART AND THEIR POSITION ON PATENTABILITY**

Page 1

I.

**THE WIMS '976 PATENT PROVIDED THE UNIQUE MOTIVATION
TO APPLICANTS TO MAKE THE PRESENT INVENTION**

The invention of the '363 patent was precipitated by reissue applicants' awareness that the results achieved by their assignee Williamson Printing Corp in the early 1990s in reproducing on a substrate, e.g., paper, an image incorporating certain metallic inks were not the ultimate results desired for particular uses.¹

In an offset lithographic process, moisture from the dampening solution tends to oxidize and/or to dull metallic ink reproduction, which results in a less desirable degree of brilliance of the metallic inks on the resulting printed material.

The WIMS '976 methodology was a notable advance in the offset lithographic art in reproducing metallic subject matter, but lacked the ultimate desired brilliance sought in automobile advertisements, jewelry advertisements, and any type of silverware/flatware advertisements, as well as various other metallic subject matter advertisements. The printing of these types of advertisements was one of the anchors of reissue applicants' assignee's Williamson Printing Corporation's (WPC's) boutique high-quality printing business.

In late May of 1992, one of reissue applicants, Jesse Williamson, visited Germany with a supplier of metallic printing inks and observed, in his opinion, an unusual, end-of-press flexographic tower coater unit, which he believed could be used to improve the WIMS process. Williamson discussed the possibility of running metallic waterbased inks through the unit. The issue of having to run the metallic last was discussed as a problem, and Williamson discussed with the supplier how the problem could be overcome. As of May 1992, flexography had

¹ Specifically, the aesthetic results achieved by the Williamson Integrated Metallic Systems ("WIMS") process, U.S. Pat. No. 5,370,976, incorporated by reference in the instant application (col. 8, lines 8-12), which while clearly far superior to conventional four-color process printing of subject matter containing metallic images, was deemed by reissue applicants as subject to still further improvement, especially involving the application of metallic golds and silvers, which are difficult to reproduce. Four color process printing integrated with metallic colors has only occurred on a commercial scale in the last generation, first through the MIPP system ("Metallic Integrated Printing Process") by Eckart-Werke Metal Pigments and Powders of Furth, Bayern, Germany, and much more recently, reissue applicants' assignees' WIMS process, which, among other things, dramatically improved the efficiency of MIPP to make film for reproduction purposes (e.g., printing plate). MIPP, in reissue applicants' view, required laborious multiple, non-electronic, hand-masking steps.

generally been relegated to the printing of labels, packaging and flexible packaging, and was not generally deployed in the fine printing arts, e.g., commercial offset lithography. Flexography was generally considered a crude art as of May 1992 because of comparatively *poor resolution* -- i.e., dot reproduction. Resolution in flexography, however, was advancing quickly.² Reissue applicants collaborated after the trip and concluded in joint conception that to improve the WIMS process, flexography could occur prior to final offset lithography, and could be accomplished through (1) a bolt-on device, similar to a Townsend Manufacturing Company T-Head device, (2) a dedicated O.E.M. flexographic printing/coating station, or (3) the use of a modified, interstation auxiliary retractable or "rack-back" blanket coating device. It is reissue applicants' position that at least alternatives (1) and (3) as of late May 1992 were readily reducible to practice without undue experimentation.

It is further reissue applicants' position that a fair reading of the pertinent art indicates that as of the first date of their invention, the artisan had no motive to employ flexography ahead of final offset lithography, and would not have tried such a step. In fact, reissue applicants believe that as late as 1994-5, the only people anywhere in the world which would have had the motivation to go "upstream" with flexography in an offset lithography press would be a printer or a manufacturer of inks or coating, probably metallic inks or coatings. Bird Decl. ¶6.

With WPC's negotiations for five new Heidelberg presses from Heidelberger Druckmaschinen A.G. in late July-early August 1994 and their imminent installation starting in late 1994 running into 1995 (the first seven-color press was installed in October 1994), and after several years commercial experience with the WIMS process and the issuance of the WIMS '976 patent in December 1994, reissue applicants saw that commercial implementation of its already-conceived improvements to the WIMS proprietary methodologies was absolutely necessary for

² The only U.S. patents (recently found) known to reissue applicants attempting to marry the diverse flexographic and offset lithographic arts were U.S. Patent 5,181,471 and its parent, 4,884,504, to Sillars, who discloses for metallic can printing a highly specialized process of applying flexographic printing *after* "offset" printing [lithography] on a multi-image printing unit comprising a two-sided hexagonal cylinder, each face of which has a flexographic printing plate. No mention is made of the application of any such "married" offset-flexographic printing technology to multi-station sheetfed operations.

continued success in their business, precipitated in-part by their further observation overseas of existing end-of-press (EOP) flexographic station methodologies of metallic coatings and the commercial demands of their customers.

Reissue applicants discovered additional unexpected benefits. It was further conceived in the summer of 1994 as a preferred embodiment to reissue applicants' prior broad conception, that a retractable unit with an anilox roller and a chambered doctor, together with the use of state-of-the art flexographic plates, was best suited to obtain the needed material film thickness to achieve the improvement desired. It is reissue applicants' position that reduction of this configuration could be accomplished within a reasonable period of time and without undue experimentation.

The optimum integration of upstream flexography and downstream offset lithography due to reissue applicants' present advance not only improved the WIMS process by enhancing the brilliance of metallic inks in offset printing as desired by reissue applicants (including but not limited to the difficult gold and silver metallic inks), but also unexpectedly provided reissue applicants surprising reproduction of opaque inks (both aqueous and ultraviolet), coatings (both aqueous and ultraviolet), slurries containing encapsulated essences (e.g., "scratch and sniff"), and coatings capable of providing removable layers (e.g., "lotto" scratch-offs) not previously obtained by the prior art.³ It is seen that the integration of upstream flexography and downstream offset lithography in the same manner achieved by reissue applicants provides a printing manufacturer with optimum flexibility in modifying (a) traditional conventional printing presses and (b) printing press methodologies of the printing press manufacturers, allowing a printing manufacturer, i.e., printer, to achieve these optimum, results and surprising additional capacities at reasonable expense, while avoiding significant loss of offset lithographic capacity designed

³ Prior art offset lithography had significant difficulty in presenting sufficient film thickness to the substrate for certain opaque colors, e.g., whites, so as to permit one-pass through the press satisfactory reproduction of these colors without having prior darker colors and previously printed patterns show through. Reissue applicants' invention is the first to permit these opaque colors to be reproduced without the expensive previous necessity of multiple passes through the press.

by the printing press manufacturers for their presses, which cost printers millions of dollars. It is further seen that by using upstream flexography, e.g., by sealing the freshly-printed sheets with a clear, either aqueous or ultraviolet, coating prior to tumbling the sheets in a sheet fed perfector press, the undesired marking and smudging would be minimized.

II.

THIS ADVANCE WAS NOT TAUGHT BY OR FORESEEABLE
IN VIEW OF THE PRIOR ART COATING TOWERS AND
FLEXOGRAPHIC APPLICATIONS ON SHEET-FED PRESSES
WERE LIMITED TO END-OF-PRESS BLANKET COATERS

These optimum and surprising additional results could not have been achieved through use of traditional end-of-press coating towers, e.g., U.S. Pat. No. 4,706,601 to Jahn, or by deployment of sophisticated five-cylinder printing stations, such as Fischer, U.S. Pat. No. 4,421,027.

More specifically, Jahn, U.S. Pat. No. 4,706,601, remains the world standard regarding commercially-deployed end-of-press dedicated tower coater technology. The '601 technology is used in the Heidelberg Model 102 Speedmaster presses in literally hundreds, if not thousands, of printing plants. Jahn teaches an end-of-press roll coater capable of either flood coating or overcoating lacquer. Reissue applicants submit that the application of aqueous coatings, UV coatings and flexographic metallic inks was not envisioned by Jahn '601. The goal of the '601 was to seal over freshly-printed substrate materials, which had been subject to multistation offset lithography, so that the substrate could be delivered with minimal marking and smudging.

Some effort had been made in the prior art, even before Jahn '601, to modify presses to add coating apparatuses at the last printing unit, and to avoid undesired set-off, i.e., smudging of the freshly printed sheet from the back side. Some of these apparatus were complex, such as Fischer, U.S. Pat. No. 4,421,027, rarely if ever deployed in industry on a commercial scale. Fischer '027 arguably hinted about the possibility of flexography in the last two cylinders in Figures 1 - 3 of the '027 patent in the last printing station of a printing press. While Fischer remarked at col. 3, lines 8 - 10 that the last cylinder (number five) could have an inker and a

dampener, Fischer '027 gave no teaching, let alone the desirability, of flexographic *printing* prior to offset lithography in a separate upstream *printing* station. Efforts were made in legion number for applying *coating* as an in-line operation by using the last printing unit of the press as a *coater*. Note U.S. Pat. No. 4,270,483 to Butler et al. and U.S. Pat. No. 4,779,887 to Frazzitta. Butler et al. '483 taught an in-line removable *coating* apparatus for attachment to a conventional offset lithographic printing press. The apparatus included a set of pick-up and application rollers to deliver coating material from a reservoir to a standard press unit blanket cylinder. The entire apparatus was constructed as a unit, and was removable from the press when not in use.

Other artisans made some effort to teach that the next-to-last station of a press could also be utilized for coating indirectly from the plate cylinder, utilizing the dampener tray as a reservoir for the coating and the dampener roller as the *coating roller*. This so-called "double bump" would have been done in an attempt to increase the trim thickness of coating on the substrate. It was seldom, if ever commercially practiced as far as reissue applicants are aware. Note Bird, U.S. Pat. No. 4,841,903. Like Fischer before him, Bird gave no hint in the '903 patent as to the possible deployment of a station for flexographic *printing* prior to offset lithography. Methods such as Jahn '601, Fischer '027 and Bird '903 were inadequate to reissue applicants for the improvement of the WIMS methodology, i.e., these methodologies did not allow reissue applicants to print integrated metallic inks with metallic color (or allow single passes for printing opaque colors) as none of these end-of-press methodologies allowed for printing flexographically prior to offset lithography.

III.

THE STATE-OF-THE-ART ADD-ON, AUXILIARY RETRACTABLE COATER ASSEMBLIES

Various rail and other retractable assemblies (some, so-called "rack-back" assemblies) existed in the prior art, i.e., as add-on, auxiliary blanket coaters for end-of-press traditional offset lithographic stations to convert them into a temporary station for coating. In U.S. Pat. No. 4,617,865 to Switall, a basic rail assembly is disclosed, but without a chambered doctor or anilox

TOP SECRET//DEFENSE

roller. Switall '865 taught a coating apparatus using the blanket cylinder of the last printing unit of an offset lithographic press. Dirico et al. of Dahlgren International likewise disclosed in U.S. Pat. No. 4,825,804 a retractable rack-back assembly which engaged either blanket or plate cylinder of an existing final stage or "last [printing] unit" of an offset printing press, with the capability of printing directly from the blanket cylinder utilizing the offset blanket as a plate, or indirectly from the plate cylinder utilizing the lithographic plate to transfer the material from the plate cylinder onto the blanket cylinder and onto the substrate. The '804 discloses use of a textured application roller, a metering doctor blade and a coating supply See col. 2, lines 36-40. Note Dirico et al.'s earlier teaching, U.S. Pat. No. 4,685,414, also having a doctor blade assembly and an anilox roller ("textured metering roller"). Dirico in the '804 indicated no chamber was mandated, but a textured (i.e., anilox) roller and a doctor blade and a coating supply were suggested. No chambered doctor was taught. Sliker et al. taught in U.S. Pat. No. 5,107,790 a dual-headed coater, the second coating head adapted to fit for engagement to the plate cylinder on the opposite side of the printing tower. Sliker, et al. taught spot-coating (Fig. 2) and blanket coating (Figs. 1 and 3) assemblies. It is believed that sales of the Sliker et al.'s '790 rack-back assembly were successful, excluding the second coating head taught in his patent, which was generally not ordered by his customers. Sliker et al. '790 taught neither the use of an anilox roller nor a chambered doctor. Dahlgren International, Inc. (Carrollton, Texas) disclosed in a series of patents starting in the late 1980s (U.S. Pats. 4,934,305 and 5,178,678) retractable coaters having an anilox roller and chambered doctor ('678 patent). Claim 14 of the '305 mentioned a "photopolymerplate," but there is no general teaching in the '305 of the use of that plate for flexographic *printing*. There is no teaching in Dahlgren's '678 patent of flexographic printing or even a flexographic printing plate. *None of these patents taught the use of a retractable auxiliary blanket coater used with a flexographic plate for half-tone flexographic printing.*

As of the fall of 1994 in the United States, to the best knowledge of reissue applicants, so-called auxiliary "coaters" were generally used for flood coating and occasionally spot coating on the last printing unit of an offset lithographic press. These coaters were generally relegated in their uses to what the trade calls "overprinting" or "overcoating" (i.e., flood or seal coating) an aqueous coating to prevent smudging and marking of the freshly printed sheets on the last printing unit of multi-color offset lithographic printing presses. Rarely, spot coating of select images was used over varnish applied by a printing unit upstream, to provide a contrasting effect.

The 1994-distributed advertisement for a "Plate Blanket Coater" or ("PBC") of Printing Research, Inc., *infra*, was, in reissue applicants' opinion, typical of the limited claims manufacturers made for such retractable devices:

Our Plate/Blanket Coater (PBC) maximizes your *coating* flexibility, giving you more precise control and broader capabilities than ever before. Offering full-coverage gloss or matte *coatings* as well as *spot coatings* of impeccable register and quality, the PBC smoothly and consistently applies uniform *coatings* of a wide viscosity range to any desired thickness.

- Precision spot-register applications
- Elimination of halos and hard/beaded edges
- Maximum *coating* application

The advent of *coatable*, water-based and UV-curable resins offers sheetfed color printers the unprecedented power to add high gloss levels, special effects and unusual surface treatments to their range of in-house capabilities. These *coatings* vastly exceed the gloss potential of varnish, while banishing forever the mess and quality problems spray power causes in the pressroom.

Because the PBC is easily retracted when *coating* is not necessary, the press unit used for coating can function as a full printing unit whenever you need it. Or, you can easily establish a dedicated coating line on an under-used press. What's more, with our *coaters*, you will eliminate forever the press downtime associated with blanket cutting, packing and image registration. No other *coater* can accomplish this.

Our *coaters* minimize wash-up and makeready, offering unrivaled time and cost savings. Ruggedly constructed, easy to operate and maintain, our patented *coaters* are on the leading edge of industry technology.

The PBC provides unparalleled quality control, enabling you to *coat* with as much control as you print. *Coating* material is applied as if it were another ink color, using your printing unit as it was designated to operate – to lay down a precise film membrane on the substrate.

What's more, the PBC achieves this high-impact appearance in a fraction of the time it takes in varnish or laminate – and without the mess and quality control problems associated with these now obsolete methods. So your customers receive the highest quality product, with an incredibly fast turnaround.

The PBC applies *coating* either at the blanket, for full coverage work, or at the plate, for precise register application of *spot coating* without hard edges. Or when coating is not necessary, it can be easily retracted to allow for regular printing uses. Unlike other *coater* designs that haphazardly squeeze *coating* material onto substrate under pressure – slinging coating material – the shear-coating PBC works neatly and precisely.

In the blanket mode when overall coverage is required, PBC's design provides for fast makeready and smooth application of the *coating*.

In the plate mode, the coater applies *coating* to a relief image on the plate cylinder to apply a uniform thickness of the coating film to the blanket cylinder. This *coating "image"* is then transferred by the blanket to the substrate, ensuring precise registration in all areas. *Coating* thickness and pressures between the plate, blanket and impression cylinders are all accurately and easily controlled. [Emphasizing italics supplied.]

Note that no claim is made that the "PBC" is capable of applying metallic inks or other opaque inks or other flexographic inks. It was not until after reissue applicants' first simulation of the invention in March 1995 that PRI published an amended brochure, *infra*, emphasizing that their PBC could be used for flexographic *printing*.

IV.

REISSUE APPLICANTS AND THEIR ASSIGNEE'S RECENT, LITIGIOUS RELATIONSHIP WITH PRINTING RESEARCH

In late July/early August 1994, reissue applicants' assignee came to a verbal agreement with Heidelberg Druckmaschinen A.G. to purchase five offset lithographic printing presses, which ultimately totaled about \$18 MM, believed to be at the time the largest single order of offset lithography presses in United States history. The order was precipitated after a sixteen month study of the advantages and disadvantages of three major lines of presses, and the realization that reissue applicants' existing line of Komori Lithrone and OMCSA presses were aging, lacked automation and, importantly, had an insufficient number of stations to handle, in one continuous pass, the necessary number of gold and silver and other opaque applications for the WIMS process.

In the previous month, July 1994 reissue applicants witnessed at Heidelberg a demonstration of an end-of-press tower coater with BASF flexographic plates and having an anilox roller and a chambered doctor, and believed that an anilox roller and a chambered doctor, when used with state-of-the art flexographic plates in a rack-back mechanism, would provide the quality printing of flexography desired in the new process (the German press manufacturer was printing metallic subject matter with a flexographic plate, standard labels and greeting cards, but not with half tone images). Reissue applicants' realization, if implemented, would limit the degree of choices for their preferred embodiment to certain rack-back assemblies sold by auxiliary manufacturers, as any rack back mechanism would have to be modified for interstation deployment to fit a given existing commercial offset press, and time was of the essence given the assignee's investment and assignee's unique opportunities. Among the auxiliary manufacturers of rack-back coating mechanisms were Dahlgren International/Dahlgren U.S.A. (Carrollton, Texas), Epic Products (Ft. Worth), and much more recently, Printing Research (Dallas, Texas), all using by the mid-1990s anilox rollers in conjunction with chambered doctors. Note U.S. Pats. 4,934,305 and its continuation-in-part, U.S. Pat. No. 5,178,678 to Koehler et al. of Dahlgren, the senior and leading manufacturer of these devices since the late 1980s. Reissue applicants understand that Dahlgren has sold in the last decade at least about several hundred of the '305 or '678 devices in commerce to modify end-of-press units, with the advantage that, for the '678 version, the last printing unit can print and coat simultaneously. Reissue applicants do not recall that any of these rack-back coating manufacturers ever advertised sale of their units as a *printer*, let alone supplied with flexographic plates.

In August of 1994, reissue applicants explained their new process to a salesman for Heidelberg U.S.A., Scott Brown, Brown Decl. ¶2, and indicated they wanted to conduct simulations of their process invention at the Heidelberger Druckmaschinen headquarters in Germany. *Id.* Brown contacted BASF concerning BASF's flexographic "round exposure unit" for making flexographic plates in September 1994. Brown Decl. ¶3. While the trip to Germany

was originally scheduled December 10, 1994, it was rescheduled to after the holidays, January 20-21, 1995. Brown Decl., ¶3.

On October 1, 1993, the assignee of reissue applicants and their owners, including reissue applicant Williamson, had settled a lawsuit with Printing Research Inc., whereby the assignee of reissue applicants was obligated to purchase a specified dollar amount of equipment and/or supplies from Printing Research in five years. Knowing that their old presses needed to be replaced, and were in any event inadequate to meet the optimum expectations for WIMS for certain applications, and the increasing demand for more colors on the printed sheet, reissue applicants and their assignee waited until a decision had been reached as to which line of presses would replace the aging and inadequate Japanese and Italian equipment. As soon as that decision was made in early August 1994, reissue applicants chose to purchase drying equipment from Printing Research for their new presses to satisfy the balance of their obligation to Printing Research under the October 1, 1993 settlement agreement. *Believing that they were protected under an agreement with Printing Research whereby their assignee's trade secrets would be maintained in confidence, reissue applicants disclosed to Printing Research their invention, including the embodiment of having a flexographic station print prior to one or more lithographic stations, and the preferred embodiment of using a rack-back mechanism with an anilox roller and a chambered doctor.*

Specifically, in late July 1994 with the approaching agreement by reissue applicants' assignees to purchase drying equipment of Printing Research, and following reissue applicants' trip to Heidelberg, one of the salesmen of Printing Research assigned to the Williamson Printing account, Steven Baker, met with reissue applicants in Atlanta, Georgia, and toured several printing plants. Steve Baker met with reissue applicants at an Atlanta restaurant, and was shown advertisements made by the WIMS process. Baker Decl., ¶5. The parties discussed the WIMS process and reissue applicants explained their inventive process in confidence to the PRI salesman. Note Baker Decl., ¶¶ 4, 6. Reissue applicants talked to this PRI salesman about

applying or printing litho ink over flexo ink in-line on a sheetfed offset lithographic printing press, i.e., employing what had previously in the art been considered to be a simplistic, if not crude technology -- flexography -- "upstream." Baker Decl., ¶7. In fact, one of the companies toured had installed a Printing Research HV dryer in one or more of the presses, and the PRI salesman understood that the reason for the interest was that for the proposed novel process to work, the flexo ink would have to be dried before the litho ink, or one would have to use multiple pass offset lithography, i.e., "dry-trapping" the litho over the flexo ink.

Reissue applicants contend that although resolution in flexographic plates was rapidly advancing, one skilled in the art in July 1994 would not have expected the use of a flexographic printing plate with an end-of-press coater to present on a substrate sufficient *resolution* to be compatible with offset lithography.

Reissue applicants inquired of this salesman of PRI whether PRI had any retractable equipment like Dahlgren's which could be modified to go "upstream." The PRI salesman replied in the affirmative, and stated that PRI had a "rack back" coater similar to Dahlgren International's -- the one indicated above advertised -- now having recent improvements involving an anilox roller and a chambered doctor. Note Baker Decl., ¶7. At this time in 1994, to the best of reissue applicants' knowledge, regarding flexography, PRI had only commercially developed the so-called "E-Z" coater, infra, -- then believed by reissue applicants to be a failure in the commercial marketplace -- and the parties discussed the possibility of installing a variation of this between units and then using the HV dryer to set the flexo ink prior to applying the litho ink. Reissue applicants rejected the "E-Z" approach for an interstation flexographic use, and indicated that an end-of-press rack-back unit, e.g., the "PBC," would have to be modified. The parties agreed to having an experiment for reissue applicants' assignee of PRI's "PBC" end-of-press rack-back in October or November. See Baker Decl., ¶8; Bird Decl., ¶12. However, reissue applicants themselves -- not PRI -- obtained for use in the experiment the state-of-the-art *flexographic printing plates and inks* -- all with an eye to determine what *resolution* could be obtained by

PRI's rack back device to *print flexographic inks* -- particularly golds, silvers and other opaques -- as opposed to coatings. Note col. 11, 46-54, col. 11, 1-10, and lines 20-25 and col. 10, lines 53-67 of the '363 patent. Reissue applicants participated in a series of experiments conducted at reissue applicants' direction of this end-of-press rack-back on PRI's two-color press in the fall of 1994 using Williamson Printing Company's-supplied flexographic printing plates, Wolstenholme (Manchester, U.K.) metallic flexographic inks, and other (Bordon) opaque flexographic inks, to determine resolution. Note again, Baker Decl., ¶8; Bird Decl., ¶12. Reissue applicants contend the art had not appreciated by the summer or fall of 1994 the potential benefits of using state-of-the-art flexographic printing plates and flexographic inks in conjunction with auxiliary rack back units to make half-tone flexographic printing *prior to* offset lithography.⁴

In the meantime, the same PRI salesman, upon returning to Dallas to the offices of PRI, informed John Bird (mentioned above) and Steve Garner, other employees of PRI, of reissue applicants' invention. Baker Decl., ¶9; Bird Decl., ¶10.

Bird started having meetings with Jesse Williamson and Bill Davis of Williamson Printing Corporation -- and sometimes only Bill Davis -- on or about August 18, 1994. Bird Suppl. Decl., ¶2. A total of 23 or so references to Williamson Printing Corporation, Davis or Jesse Williamson exists in Birds monthly "Day-Timer[s]", indicating at least seven meetings with both Davis and Williamson and another seven meetings with Davis. Id. In these meetings and conferences, starting on or about August 18, 1994, Davis and/or Williamson conveyed to Bird details about the process they wanted implemented by a modified "rack-back" device to go upstream, together with tests they wanted in the fall of 1994, end-of-press a the two color

⁴ The technology of flexographic plates saw tremendous improvements between the late 1980s and the early-to-mid 1990s. By the mid 1990s, each of W.R. Grace/Polyfibrion Technologies, Inc. (Lexington, MA), duPont (Wilmington, DE) and BASF (Holland, MI and Stuttgart, Germany) were marketing readily available state-of-the-art high resolution flexographic photopolymeric plates, marketed under the brand names of Flex-Light Splash™, Cyrel™ and Nylocoat™, respectively. The resolution capability of the product of these three companies leap-frogged each other on a product-by-product basis. By late 1994 the resolution of these plates had reached 155 lines per inch and could hold a 2-3% dot. Depending on the plate selected, flexography could be performed on solvent-based or the more environmentally safe aqueous-based systems. Technically, reissue applicants had no preference between the photopolymeric plates of the three major U.S. market suppliers as of early-mid 1995.

experimental test press at Printing Research, Inc. Bird Suppl. Decl., ¶3. Specifically they discussed *in various meetings in August 1994 and ending in late 1994*:

- (a) the resolution requirements for their flexographic plates;
- (b) requirements for anilox rollers, including line-screening count ranges and minimums, and the availability of anilox rollers having these features;
- (c) the WIMS process (now U.S. Pat. 5,370,976);
- (d) problems with the printing of metallics / whites / opaques / encapsulated essences / various other coatings with WIMS '976;
- (e) their desire that the flexographic plates be mounted on the blanket cylinder;
- (f) their uses and requirements for flexographic inks; and
- (g) half-tone printing,

all using the new process. Bird Suppl. Decl., ¶4. Bird took this information and passed it along to Ron Rendleman, sometimes Howard DeMoore, Steve Garner, Steve Baker and Dave Douglas, with Ron Rendleman being the principle person with whom Bird discussed Williamson Printing Corporation's specific requirements and the information in the aforesaid meetings. Bird Suppl. Declar., ¶5.

Garner, former President of PRI and a Vice President during the 1994 - 1995 events, is consistent with Bird's testimony. Garner indicates that during the critical period, no one at PRI indicated that he / they had invented what is now the '363 process, and that the development at PRI, starting in December 1994, followed Bird's input concerning the desires of WPC.

Accordingly, starting in late 1994, and following the discussions from August 1994 - November 1994, PRI developed at WPC's request a *short arm* cantilevered, retractable coater for use on a dedicated end-of-press tower coater, which was called internally within PRI "the Rendleman coater," named after yet another PRI employee.⁵ *Id.* Note Baker Decl., ¶¶ 7-8; Bird

⁵ WPC requested a short-arm retractable coater, as opposed to the ultimately desired interstation coater so that delivery could be expedited and testing and development could be evaluated as soon as possible, as engineering and fabrication time for an experimental short-arm device was much quicker and the short-arm device at end-of-press would be easier to install to easier to modify at end-of-press.

Decl., ¶¶ 10, 13, Bird Suppl. Decl., ¶7. Part of the prototype cantilevered *short arm* "Rendleman coater," sitting on a bench for use at the tower coater at end of press, was shown to reissue applicants in December 1994. It had not been installed on any unit at PRI. Reissue applicants maintain, given the fact that PRI had at its facilities only an old two-color Heidelberg printing press, there was no way PRI could fairly simulate, let alone reduce to practice, the invention or appreciate or foresee its ultimate benefits. The *short arm* prototype could only be mounted on an end-of-press tower coater of a commercial Heidelberg press, which was not present or part of either unit of PRI's old two-color press.

As indicated previously, reissue applicants, aware that they had ordered a Heidelberg six color press with two coating unit end-of-press expected to arrive in March, had determined in the summer of 1994 that it was necessary to evaluate a chambered doctor system as used on one of the coating units as an option. See Brown Decl., ¶¶ 2-3. They elected on January 20-21, 1995 to simulate, on-line, the invention based on negatives of a prior Rolex and Lexus gold metallic advertisements where WIMS had previously been employed, and compare the results of their simulated off-line invention with the prior WIMS results using standard lithographic metallic inks in line. Reissue applicants carried their Rolex and Lexus brochure negatives to Heidelberg, and the anilox roller on the preexisting Heidelberg five color unit was used in a three pass run -- the first two passes gold and then silver in flexographic runs followed by a lithographic run. In attendance at the tests were reissue applicants, Wolstenholme personnel, and representatives from Heidelberger Druckmaschinen A.G. and its subsidiary, Heidelberg A.S.A. Both Wolstenholme and Eckart flexographic metallic inks were used, and BASF plates supplied by Heidelberg. Brown Decl., ¶¶ 4-5. Several hundred impressions were made. Brown Decl. ¶5. The results, compared against the WIMS prior advertisements, were startling, and reissue applicants and the other attendees fully appreciated the dramatic and surprising results that their invention would produce. The enhanced brilliance of the Rolex advertisements and Lexus brochure were memorable. Note Brown Decl., ¶6. Reissue applicants continued work towards

filings their process patent applicant, and informed PRI of their simulation and the forthcoming patent application. Note Baker Decl., ¶10; Bird Decl., ¶¶ 14-15. Reissue applicants decided to have their forthcoming six color Heidelberg press delivered with a roll coater, and decided to add a retractable short arm auxiliary anilox roller to the first tower of the triple tower press.

Knowing that the results by simulation of their process invention would be a success, reissue applicants committed in early February 1995 to install the only existing experimental *short-arm* Rendleman coater on the coating tower of their assignees' new Heidelberg seven color press, the first Heidelberg press delivered the previous fall. The *short arm* device could not be installed on any Heidelberg printing station, but only on an end-of-press coating tower. The *manually-engaged, short arm* unit was installed on the new Heidelberg color press on the end-of-press tower coater for engagement with the blanket-plate cylinder in late February 1995. Reissue applicants believe PRI was not asked, nor did it, supply to WPC flexographic plates or inks in early 1995.

On February 11, 1995, knowing that an interstation auxiliary unit would achieve successful results, and having sufficient confidence in PRJ's development of the requested short-arm device, one of reissue applicants requested PRI to design and install a modified, *long-arm* version of the experimental, *short-arm* coater on the first station of a new six color triple tower Heidelberg press -- a different new press than the seven color Heidelberg press mentioned above -- which coater was to be an interstation coater. Note Bird Decl., ¶15.

Knowing that simulated off-line processing would yield successful results, by March 4, 1995, using the *short-arm* device, reissue applicants were already demonstrating to third parties, including the foreign press in their plant in Dallas an off-line, or multiple pass, non-continuous reduction/simulation of the invention, and commercial off-line reductions/simulations were occurring by March 20, 1995. PRI employees, including Bird, witnessed some of the simulations. Bird Decl., ¶16; Bird Suppl. Decl., ¶8. Reissue applicants won an award for their first March 20, 1995 commercial off-line reduction/simulations, which were performed for Mills

Davis and Hi-Fi color, and were known as the "Brian Lester" poster, at the PIA's Premier Print Awards, later in 1995, in Chicago, Illinois, in "New Technology Pieces," illustrating that their new technology was received by the trade as having unexpected brilliance in gold metallic reproduction combined with surprising resolution. PRI never claimed it should share in the prize. Note Bird Decl., ¶16.

To implement reissue applicants' February 1995 order for an interstation *long-arm* modified unit, PRI presented to reissue applicants (1) an incomplete non-figured drawing of an interstation cantilevered device, and separately (2) an incomplete computer assisted ("CAD") drawing of a proposed *long-arm* interstation unit to be utilized in reissue applicants' process. Reissue applicants and PRI were not transmitting back and forth research and development memoranda, e-mails, or blueprints.

Believing they had a secrecy agreement with PRI, reissue applicants told PRI of the March 20, 1995 simulation/reduction, and even gave copies of the "Brian Lester" poster to PRI. After March 20, 1995, PRI immediately amended its "PBC" brochure advertisement, and by late April 1995 indicated the following, now emphasizing the flexographic *printing* capability of a [proposed] new cantilevered interstation device, although no such *longer-arm* cantilevered device had yet been made:

"Add Innovative In-Line Interstation and End of Press *Printing* Coating" (heading)

The Super Blue EZ Interstation Flexo *Printer/Coater* is installed directly onto a print unit, for applying any one of a number of aqueous or UV based metallic/opaque inks between print units. (description below drawing)

Have you ever wanted to add in-line coating capabilities, metallic, opaque, or other specialized applications to specific print units? Was your decision not to enter this market influenced by mediocre quality, undesirable environmental considerations, or the prohibitive cost?

Search no more ... Your needs and concerns have been resolved!

Printing Research, Inc., invites you to review the patented family of EZ Print/Coat products as described in this brochure. We are confident that you will find the perfect solution to your present and future *printing* demands.

EZ Interstation Flexo Printer/Coater

The Super Blue EZ Interstation Flexo *Printer/Coater* is retractable so that it can be swung up and above the reprint unit for conventional printing or swung into the blanket position to offer complete application variations from job to job. The patented coating head assembly is comprised of two main components. A combination of engraved anilox rolls are offered to provide a consistent overall ink/coating weight. The anilox rolls yield excellent ink/coating release and lay characteristics with no fear of plugging, leaking, or misting due to the unique enclosed doctor blade assembly." (Emphasis *italics* supplied)

This different, *long-arm, automated*, coating device would take some time to be manufactured, and on information and belief, PRI did not even start serious work on the unit until late May 1995 or early June 1995. Reissue applicants believe that the design and manufacturing cycle for a cantilevered *long-arm* device with a chambered doctor and anilox roller would be no more than about four months, due to the necessary new machining and new automation, and substantially less for a conventional rack-back linear ramp coater having existing automation. In fact, PRI's confirmatory letter for the first interstation cantilevered device was transmitted to WPC on May 12, 1995, setting 90 days for completion and installation. See Bird Decl., ¶18. The *long-arm, automated*, unit was actually installed by PRI in late August or early September 1995 (see Bird Decl., ¶20), and the first reduction of the invention on a continuous line occurred at WPC by WPC personnel on the six-color triple tower press in mid-September. Note Bird Decl., ¶21.

At no time prior to reissue applicant's summer filing date on August 14, 1995, did anyone at PRI ever disclose any of reissue applicants' claimed invention to reissue applicants, or even produce an off-line, multiple pass reduction of flexographed, and subsequently lithographed, substrate work product similar to what reissue applicants had produced on March 4, 1995, and shown to third parties. Note Bird Decl., ¶¶ 5, 24-26.

It was evident to reissue applicants in early 1995 that a number of rack-back assemblies could be utilized for deployment in their novel process, depending on the degree of modification of these mechanisms according to the desires of the printer and the configuration of the presses to which the rack-back could be attached. It is reissue applicants' position that the 90-day

completion time indicated in the May 12, 1995 Bird letter was a reasonable time for the development and installation WPC would have obtained from any other existing competent manufacturer of an auxiliary unit modified for instation deployment. See Bird Decl., ¶18. It was also clear to reissue applicants that the so-called "E-Z coater" technology of Printing Research (note U.S. Pat. Nos. 5,176,077, 5,207,159 and 5,335,596) could not be easily modified for the expected interstation commercial marketplace and were impractical.

The patent literature indicates that Printing Research's 1995-developed cantilevered retractable device developed for assignee of applicants was not the first pivoting-arm coater. Norton Burdett of Nashua, New Hampshire, was said to have developed a single gravure cylinder roller that transferred coating to a standard press blanket cylinder. The Burdett coater was attached to a pivoting arm, and the unit could be pivoted away from the press unit when not in use. Note U.S. Pat. 5,178,678 to Koehler et al., col. 1, lines 52-56.

V.

THE PATENT PUBLISHED BACKGROUND OF PRINTING
RESEARCH, INC. SHOWS PRINTING RESEARCH HAD
NEITHER THE TECHNICAL EXPERIENCE OR THE MOTIVATION
TO ARRIVE AT APPLICANTS' CLAIMED PROCESS IN 1995

United States patents granted to Printing Research and/or Howard W. DeMoore indicate that the bulk of DeMoore's proprietary work – at least in the form of patented technology – has been in the field of anti-marketing technology at the end-of-press stage of a printing press, generally at the delivery drum (filing dates 1971 - 1995), with interstation experience in later years at the transfer station (filing dates 1989 - 1995) and at the perfecting cylinder (1990). In fact, when Bird joined PRI in 1991, the principal efforts of PRI were involved in the field of anti-marking technology, and PRI was heavily financially involved and dependent on the sales of cheesecloth to printers as an anti-marking tool, in view of U.S. Pat. 4,402,267. See Bird Decl., ¶7. Since 1993, a much smaller number of these patents have issued to DeMoore in the areas of end-of-press drying equipment (filing dates 1993 - 1995) and high velocity interstation dryers (filing dates 1993 - 1995), of which Bird had a major role. See Bird Decl., ¶7. DeMoore also

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marketed, as indicated above, a proprietary end-of-press coater having a chambered doctor under the brand name "E-Z" (filing dates 1991 - 1993), of which very few were sold and those which were sold were, on information and belief, most or all returned for credit.

Ronald Rendelman of Printing Research co-authored several U.S. patent applications with DeMoore, all published well subsequent to reissue applicants' filing date in 1995 and not considered as prior art to reissue applicants' invention herein. John W. Bird, an employee at one time of Printing Research and author of the applications maturing into U.S. Pat. Nos. 4,796,556 and 4,841,903 mentioned above, also was the patentee of U.S. Pat. No. 4,939,992 for "flexographic coating and/or printing method and apparatus," directed to the flexographic printing of cardboard using interstation equipment. Sheetfed offset lithography was not utilized in the '992 patent. Bird was the national sales and marketing manager of Printing Research from January 1992 until early 1997, and had a working relationship with Printing Research until early 1998. See Bird Decl., ¶6.

DeMoore has had issued isolated patents in the fields of perfecting cylinder anti-marking, wash-up systems for printing presses, and the aforementioned retractable and general integrated systems of flexography and sheetfed offset lithograph, the latter all published after the date of reissue applicants' application and invention. Note European Pat. No. 741,025 A2, those process embodiments derived from reissue applicants.⁶

None of the issued patents in the United States to DeMoore, Rendleman, or Bird indicates general or substantial experience of those persons with the flexographic arts, especially if combined with sheetfed offset lithography, until after their disclosure to them of reissue applicants invention in 1994. None of the issued U.S. patents to DeMoore, Bird or Rendleman indicate they had experience in the printing of metallic inks, let alone metallic integrated printing, which gave rise to the present invention, or with the advantages and shortcomings of the WIMS patent, U.S. Patent No. 5,370,976. None of the issued U.S. patents to DeMoore,

⁶ Those portions of EP 741,025 (A2) which overlap the patent being reissued were derived from reissue applicants via John Bird. See Bird Suppl. Decl., ¶9.

Rendelman or Bird as of the fall of 1994 taught the modification of a rack-back or retractable coater for interstation deployment as a flexographic printer, complete with the teaching of the use of an anilox roller, chambered doctor and the use of flexographic plates.

CONCLUSION

The invention grew, in part, out of a desire to enhance the brilliance of gold and silver and other opaque inks produced by offset lithography in the atmosphere of WIMS integrated printing. Reissue applicants know of no technology prior to the field of metallic integrated printing, i.e., four color process printing, that attempts to achieve full color reproduction of metallic subject matter.

The cost of the laborious, multiple, non-electronic, hand-masking steps of the aforementioned prior art MIPP system as opposed to WIMS, would further discourage the artisan from wanting to introduce the additional cost and complexity of an upstream flexographic step.

Reissue applicants' assignee since 1992 have had, by far, the greatest experience with its proprietary WIMS process to enhance metallic reproduction, and therefore had the greatest, if not unique, motivation to arrive at the claimed process.

Reissue applicant's submit researchers in offset lithography inexperienced in metallic integrated reproduction and working for large institutions such as printing press manufacturers or large commercial printers, had no motivation to introduce flexography upstream of the normal offset lithography stations. Reissue applicants likewise submit researchers in offset lithography of small independent contractors and graphic designers, such as Bird, and DeMoore and Rendleman of Printing Research, would have had even less motivation (in the absence of significant metallic integrated printing experience) to make the desired changes unless they were provided a specific job order to design equipment by someone experienced in the art, which is what happened here.

The facts clearly indicate reissue applicants had an early and complete conception of the invention, which grew out of the unique motivation to improve the WIMS process. Further, the sequence of events in late 1994 and early 1995 show reissue applicants disclosed their invention to PRI which was requested and did manufacture a modified rack back for interstation use in reissue applicants' *process* invention.

Respectfully submitted,



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